DOCUMENT RESUME

ED 210 961 HE 014 475

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TITLE Using the Computer to Teach Methods and Interpretative Skills in the Humanities: Implementing a Project.
PUB DATE Jul 76
NOTE 71p.

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Biblical Literature; *Computer Assisted Instruction; Course Evaluation; *Critical Thinking; Curriculum Development; Higher Education; Humanities Instruction; Introductory Courses; *Logic; Logical Thinking; Program Implementation; *Religious Education; Student Attitudes
IDENTIFIERS California State College Bakersfield

ABSTRACT

The results of implementing computer-assisted instruction (CAI) in two religion courses and a logic course at California State College, Bakersfield, are examined along with student responses. The main purpose of the CAI project was to teach interpretive skills. The most positive results came in the logic course. The programs in the New Testament did not receive adequate testing, and the programs in an introduction to religion were not typical examples of the programs for which the project was designed. Programs were prepared in the EXBASIC language, and in 1976, with the installation of a new PDP-11 minicomputer, they were converted to BASIC-PLUS and tested with students. The so-called synoptic problem was taught both by lecture and CAI in the new testament course. Programs in the introduction to religion course concerned Hinduism: one asked students a variety of questions about the caste system in India, while the other dealt with the four traditional stages in a man's ideal life in Hinduism. The programs in introductory religion were evaluated by unsolicited comments from students, student evaluations and comments solicited by a questionnaire, and student performance on the final examination. In evaluating the logic course, which taught the concept of generalization, it was found that many students were repeating the exercises several times until they felt that they knew the material thoroughly. It is concluded that the computer is a valuable teaching tool in the humanities, and that its applications can be extended. Descriptions of the programs and statistical analysis of student evaluations are appended. (SW)

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USING THE COMPUTER TO TEACH METHODS AND INTERPRETATIVE SKILLS IN THE HUMANITIES: IMPLEMENTING A PROJECT

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USING THE COMPUTER TO TEACH METHODS AND INTERPRETATIVE SKILLS IN THE HUMANITIES: IMPLEMENTING A PROJECT

Bruce William Jones

In 1975 the Chancellor's Office of the California State University and Colleges system allocated money for three faculty members at California State College, Bakersfield, to prepare programs for computer-assisted instruction (CAI): Jacquelyn Ann Kegley in logic; Richard E. Stockton in English literature; and myself in religious studies. Programs were prepared in the EXBASIC language, and in 1976, with the installation of a new PDP-11 mini-computer on campus, they were converted to BASIC-PLUS and tested with students.

Because of unforeseen delays in implementing the programs in English literature, they have not yet been tested with students. The present paper will describe the results and responses of students to the programs in logic and religious studies. It will be divided into three parts, reporting results in (1) Religious Studies 302, New Testament, (2) Religious Studies 101, Introduction to Religion, and (3) Philosophy 102, Logic. Implementation in Religious Studies 301, Old Testament, will come later.

I. New Testament

At this stage, the results in R S 302 are the most disappointing of our three courses, although I believe that potentially the CAI programs for this course are the most creative.

The problems with this course arose largely because it was the first of the three. It helped to pave the way for the other two, but its own casualties were high. R S 302 was scheduled for winter quarter 1976. We originally anticipated that our new mini-computer would be operating smoothly by January 1. Then the installation schedule was revised, further complicated by some equipment delays and technical difficulties before the system reached its present level of smooth operation. Now, the mini-computer, with its efficient, fast, quiet cathode-ray tube terminals, is a wonderful improvement over our previous system.

The most frustrating part of the delay was the unexpected problems associated with moving the programs from the large CSUC computer to our own mini-computer. Eight different CAI exercises had been prepared for the course by summer 1975, each taking an estimated 15 minutes for a student to complete. By the end of the course, only two (SYNOP series. See appendix 1.) of the eight were in usable form, and they were ready long after the "pedagogical moment" when they should have been used in the course. Thus, they received only a partial, inadequate test. The six TIM programs could not be used in the class at all because of the delay.

First, let me offer a word of explanation about those delays. The programs had to be rewritten in a new language. Much of each program was

workable in its old form, and much of the needed translation could be done quickly and smoothly. However, the New Testament programs were sophisticated and complex. Some of the more sophisticated aspects presented sophisticated translation problems. The Computer Center staff, particularly Robert Otto and Melvin Burstein, were very helpful and accommodating, so that eventually the programs were usable. However, for a time it appeared that each solution would present two new problems.

A major handicap was the limited memory capacity allocated to any one program by the mini-computer. All of my programs were too long for the mini-computer and they had to be divided ("chained"), so that one old program became three or four programs in the new system. (To the user a group of several chained programs acted as a single unit, and for convenience in this paper will be treated as a single program.) In simpler programs, the process of subdividing and creating "chains" could be completed fairly quickly, but it involved considerable frustration for these programs. In the future, now that we know the limitations of our equipment, our new programs can be planned accordingly from the beginning. Fortunately, the programs for our other project courses did not present these problems.

Because of the delay in the availability of the programs, my plans for the course had to be changed. I had intended to teach the so-called "synoptic problem" almost exclusively with the CAI programs. I decided, for the sake of the students, that I could not delay the topic until the programs were ready. Therefore, I lectured about the synoptic problem. Because the topic is complex and confusing, I devoted considerable class time to it. That meant that when the SYNOP programs were available, the

students were already familiar with their subject matter, and the programs never got the test they deserved.

However, in spite of these changes, the programs made a significant contribution to student learning. In a survey conducted at the end of the quarter, 75% of the respondents said "Before I did the SYNOP programs, I thought that I did understand the so-called 'synoptic problem' fairly well." 25% said they did not. However, 67% of the students who completed one or both programs said "After doing the SYNOP programs, I think I understand the 'synoptic problem' a little better" or "much better than before." Only 33% noted no significant change. A large majority then benefited considerably from the use of the programs, even though they thought they already understood the material -- and had, in fact, understood it as well as they could if CAI had not been available to them.

II. Introduction to Religion

Computer programs were used in spring quarter in two sections of Logic and in one section of R S 101, Introduction to Religion.

The CAI programs in R S 101 were the least innovative ones of the whole project. They were frankly intended to teach information, whereas the main thrust of our project was directed toward creating open-ended programs that helped students come to one of several possible conclusions and to defend the conclusion against various objections. They were intended to help students make careful observations and to make complex decisions about their observations. The programs for R S 101 taught traditional material in which there was only one right answer for most questions, in contrast to our intent in the other programs of dealing with topics for which there might be several "right answers."

In spite of these limitations, the results were encouraging, and student response was enthusiastic.

Three programs were used in the course. TRY was simply a typing exercise to accustom students to the computer terminal. It asked simple questions and gave some humorous responses in the hope that students would enjoy the experience. The program was written to deal with the initial fear we found among many students at their first contact with a computer terminal.

Part of the course introduces students to the perspective of eastern religions. In that connection, my other two programs presented two aspects

of Hinduism. The first, CASTE, asked students a variety of questions about the caste system in India. The other, STAGES, dealt with the four traditional stages in a man's "ideal" life in Hinduism. The four stages constitute a kind of religious model for the good life. Both programs reinforced what the student already knew from reading, provided new information when needed, and corrected any misinformation the student might have. There was also some drill in the technical terminology used to describe the castes and the stages. In these two programs, students could answer many of the questions with either an English term or a technical Sanskrit term. If the student knew only the English-language answer, then he or she was given the term in Sanskrit. STAGES has an optional drill in the Sanskrit terminology, available at the choice of the student.

The programs in Religious Studies 101 can be evaluated by three different kinds of student response: (1) unsolicited comments from students, (2) student evaluations and comments solicited by a questionnaire, and (3) student performance on the final examination.

All of the unsolicited comments from students in R S 101 came from diaries which all students were required to keep. The diaries are handed in weekly; there is no requirement about their content. They may be as short or as long as the writers wish. Some students comment on weekly readings or events in class. Others describe personal events or individual ideas. They are ungraded.

Nine students chose to comment in some way (one of them twice) about the computer exercises. The writers are not a random sample of the class,

of course, but their comments may be more significant because they were spontaneous and unsolicited. All were fairly positive. They are given here, in order of appearance:

"I really did enjoy the computer exercises. It was really neat working with the computer terminals. I was able to gain some knowledge from the exercises concerning Hinduism."

"I just hope that computers are used for things like this and stop putting people out of work.

"I also liked the computer test."
(This comment is revealing in the way it reflects a common student tendency to regard questions as "tests" which affect their grades. The computer programs were introduced as aids to learning rather than as tests. In fact, the instructor never knew what answers were given.)

"Oh -- those computer programs are so neat. I did TRY on Friday, and CASTE yesterday. Those computers are a lot of fun -- and personally they help me a lot. They help emphasize what you think is important -- and it's a fun way to learn -- and it helps me remember longer... Terrific idea."

"I really enjoyed working with the computer. It was a change in learning. Besides learning how to operate the teletype and computer, I learned more about the caste system. More classes should use the computer as a part of the learning process. It makes learning that much more enjoyable."

"With our initiation to the computer I see some real value to its (their) use. Especially when incorporated into the entire quarter. It will offer a routine-break and when directly related to the classroom study be very beneficial."

"I've really been enjoying the computer exercises. I wish we had more. They're fun!"

"The computer programs are going to be very interesting. I think it will be a good experience for most of us. Probably the closest any of us will get to a computer is a pocket calculator."

"I did STAGES this morning, and CASTE for the 3rd time. I wish more of my classes used interesting teaching aids like that. It really helps."

"I felt that the computer programs helped me in learning the Hindu caste system and the stages of life. The first run through both was hard, but the second time, I found that I had remembered the answers. TRY was fun. It was a new experience for me to have a computer talk back to me."

The theme of fun, "interesting," or enjoyment appears frequently. For this group of students, at least, even if the CAI exercises had not taught some information about Hinduism, they would have made an important contribution to education by making it more pleasant.

Additional comments came anonymously from a few students at the end of the quarter. In each of our CSCB classes students are required to fill

out a standardized Student Opinionnaire of Courses and Instruction (SOCI). There is space for written comments, although few use it. In this instance, when asked to suggest changes in the instructor's approach in the course, one student wrote "more of the computerized work," and another said "Use more computer programs." None of the written comments had any negative evaluation of the computer exercises, except that one student wrote "On the computer exercises it was not always clear whether to answer in Sanskrit or English, but on some questions I had never heard of the Sanskrit so I learned it from the computer." The only other reference to the computer in the written comments came from a student who explained why he or she had not completed the exercises: "I thought that the programs were taken out of the computer."

A comment from a former student who saw the computer exercises should also be added here to conclude this section: "I didn't know a computer could be so much fun. It would have made it a lot easier to learn if we had had that when I took the course."

A multiple choice evaluation questionnaire was administered near the end of the quarter in R S 101. Thirty students completed the survey. Not all of the respondents had completed all of the programs at the time of the survey (in spite of due dates and reminders). However, to my surprise, many students used the programs repeatedly. Even the simple TRY exercise was used from four to six times by four students. Four students used CASTE three or four times and eleven used it twice. Exactly 50%, then, used it more than once. Even though there are a limited number of response-options in each program, students were apparently not bored by multiple use. I

venture to guess that a textbook would not be re-read so often. Students probably liked the positive reinforcement in the programs when right answers were given, but also the computer provided unlimited opportunities for the student to repeat something until it was mastered.

Interestingly, all of the students who did even one computer exercise judged them to be "very helpful" (12 students) or "fairly helpful" (17 students) "as an aid to learning." No one considered them "not too helpful" or "not helpful at all."

Eleven students (41% of those who replied to that item) said, "After doing the CASTE program, I think I understand the caste system a little better than before" and another eleven (41%) said "much better than before." Five students noted no major change, apparently having already understood it well from their reading. None said they understood it less well after doing the program.

Fewer students completed STAGES, but the response was slightly more enthusiastic, proportionately. (For a more detailed statistical analysis of the survey results, see Appendix 2.)

The final examination included a question in which students had to write on one of four topics, two of which dealt with material from the computer exercises. The four topics were:

A. The Four Noble Truths of Buddhism
B. The Hindu caste system
C. The "stages of life" of Hinduism
D. The role of the gods in Hinduism

Each had been dealt with briefly in reading assignments; of the four, the Buddhist noble truths had received the most extensive treatment in reading.

The chief difference in the handling of the four subjects was that the first and fourth were covered in detail in class lectures but not by CAI. The second and third subjects were covered by the CAI programs, but not in class lectures. I chose the four topics deliberately in order to see whether the students were more likely to choose the CAI alternatives and to see whether they would give better answers to the CAI questions.

I was the only evaluator of the quality of the answers, so the scores of students may have been influenced by my own expectations and biases. The student grades, therefore, are not necessarily a reliable indicator of the success of the CAI programs. As a matter of fact, there was only a slight difference between the grades of the CAI group (2.66 GPA) and the non-CAI group (2.74). The grade distribution in the non-CAI group was very irregular because most of those who described the four noble truths did so very well and the two students who described the Hindu gods wrote poor answers for some reason.

Two more objective criteria distinguish the groups of students who answered the four alternatives. First, the choices they made indicated the topic on which each of them believed he or she could perform best. The four questions were chosen by 10, 11, 6 and 2 students, respectively. In other words, 17 out of 29 (58.6%) thought -- in their own self-evaluation -- that they knew most about one of the CAI-taught topics.

Another objective measure of the answers is their relative employment of foreign technical terminology. Each of the four questions could be answered without using foreign terms, but several technical terms in Sanskrit

(or Pali) would have been appropriate for each answer. The four Hindu stages of life or the four castes could be named in English or Sanskrit. The noble truths have Pali terms associated with them. Foreign names were particularly appropriate in the fourth question; a good answer should name specific gods and there are no recognized English equivalents for their proper names.

Before the exam, I judged that there was nearly equal exposure to foreign terms between the CAI topics and the non-CAI topics, with perhaps a slight advantage in favor of the non-CAI subjects. The Pali terms used in connection with the Buddhist noble truths were mentioned in both reading and lecture, and were written on the blackboard during lecture. The Sanskrit terms for the stages of life and the castes did not appear in the assigned reading, but were used in the CAI programs. Names of three gods and one term for them collectively, trimurthi, were used in the reading. Those same names, plus the names of several other gods and goddesses were used in lecture, written on the blackboard, and repeated later in class during visual presentations (slides and pictures).

The foreign terms were used much more by the students who wrote on the two CAI topics. The frequencies may be represented in table form, as follows:

	Four noble truths	Caste	Stages	Gods
No foreign terms	6 (60%)	2 (18%)	5 (83%)	1 (50%)
1	1 (10%)	3 (27%)	1 (17%)	0
2	2 (20%)	2 (18%)	0	1 (50%)
3	1 (10%)	1 (9%)	0	0
4 or more	0	3 (27%)	0	0

Combining the two CAI questions together and the two non-CAI questions produces this table:

	CAI	Non-CAI
No foreign terms	7 (41%)	7 (58%)
1	4 (24%)	1 (8%)
2	2 (12%)	3 (25%)
3	1 (6%)	1 (8%)
4 or more	3 (18%)	0

Thus, 59% of those who answered one of the CAI questions used at least one foreign term whereas only 42% of the non-CAI group did so. Unfortunately the sample is far too small for any dogmatic conclusions, but there is some suggestion, at least, that CAI aided in the recall of technical details.

These results may be more significant because the students were not asked specifically for foreign terms. Those which were used were given spontaneously.

III. Logic

Of the three sources, the most positive results came in Philosophy 102, Logic. That is particularly encouraging to me, since this was the course in which the CAI programs written specifically under the terms and purposes of the grant received the most thorough evaluation. The programs in New Testament did not receive adequate testing, as noted above, and the programs in Introduction to Religion were not typical examples of the programs for which the project was designed.

Two sections of Logic were taught by Jacquelyn Ann Kegley during spring quarter. She used her RED programs which had been prepared earlier for use in this course. At the end of the course, she administered an evaluation questionnaire to both sections, and 46 students responded.

Out of the 46, 19 (41%) found the computer exercises to be "very helpful" "as an aid to learning." Twenty (43%) said they were "fairly helpful." Seven students (15%) said they were "not too helpful"(4) or "not helpful at all"(3). Thirty-three (72%) said that "learning to deal with a computer was a very valuable experience." Another 10 (22%) said it was "fairly valuable."

Again, we found that many students (41%) were repeating the exercises several times until they felt that they knew the material thoroughly. Ten students used them twice and nine used them from three to five times.

Students at CSCB are required to take either Logic or Mathematical Inference as part of their "basic subjects" before graduation. Because

Logic is required, many students begin it with negative feelings. The course has a reputation for being difficult, and it is difficult for most of them. In these two sections 38 of the respondents (83%) found the textbook to be "too difficult"(10) or "somewhat difficult"(28).

Against this background the aid of the computer was particularly valuable. The concept of generalization was the subject of the RED programs, and 33 students (72%) said that they did not understand the logical concepts involved before doing the computer exercises. Thirty-two (70%) of the group, regardless of their answers to the previous question, said they understood generalization and the logical assessment of generalizations better than before. Since logic is so difficult for so many students, this additional help provided by the computer was significant. We have no numerical assessment, but the comments of students convinced us that the pleasurable aspects of using CAI had a positive effect on student attitudes toward the whole course and to the subject.

In summary, even though all of our programs have not yet been tested with students, we have seen enough evidence to make us think that the computer is a valuable teaching tool in the humanities, and its applications can be extended with great profit.

Appendices

I. Description of Programs

RED series - logic
TIM series - New Testament
SYNOP series - New Testament
CASTE and STAGES - Introduction to Religion

II. Statistical analysis of student evaluations

Description of Programs

RED SERIES
by Jacquelyn Ann Kegley

The RED programs are designed for students in lower-division logic courses. They deal with the nature of generalization. The objective of RED1 is to teach the student what a generalization statement is and also to enable him or her to distinguish generalization statements from data statements or specific statements. This is done through a series of examples in which the students are asked to identify the two kinds of statements.

RED2 introduces three kinds of generalization statements: universal, functional, and statistical. It teaches the notion that generalizations are statements which permit no exceptions. Secondly, RED2 acquaints the student with the concept of sample and its relationship to a generalization as supporting evidence. The second half of RED2 introduces the three basic criteria by which good generalizations may be judged: number, variety and breadth relative to the sample. It asks the student to use these criteria to evaluate some generalizations relative to the samples on which they are based. The program ends with a review of the types of generalizations and the three criteria.

RED3 reviews the process of judging generalizations relative to a sample and then takes the student through the process of judging two reports of the results of empirical studies which include evidence, generalizations, and definitions of populations studied. The student is led to see the kinds of questions that need to be raised to the different kinds of materials offered in this report.

RED4 tackles again the process of analyzing a complex paragraph which this time involves an evaluative judgment concerning a speaker's advocation of the use of marijuana and mescaline. The paragraph includes also the evidence or reasons for the judgment. The student is led through a step-by-step critical analysis of the passage and then is guided through a process of rewriting the paragraph in a way which strengthens the evidence and thus also strengthens the evaluative judgment. Programs vary in length, but most students can complete all four units in two to three hours. Time of execution will vary from student to student because of optional reviews and additional examples which will not be given to students who do not need them.

TIM SERIES
by Bruce William Jones

The TIM programs deal with the authorship of the New Testament pastoral epistles, I Timothy, II Timothy, and Titus. Traditionally, these are attributed to Paul, but the majority of modern scholars regard them as having been written much later than his time. It has been my previous experience that students either accept or reject that majority consensus on the basis of their individual preconceptions, but that it is difficult for them to become involved in the academic details upon which a conclusion ought to be based.

TIM1 introduces the student to the fact that many scholars consider someone other than Paul to be the author of the three epistles, and it asks whether the student would consider such pseudonymity to be forgery. The present state of the student's acquaintance with the problem is tested, and then there is a brief survey of the external evidence, specifically that the earliest Christian writers do not quote these three documents, which raises the possibility that they were not written until a later period.

The heart of the argument begins in TIM2, which deals with the style and vocabulary of the letters. The program mentions various differences between these letters and other letters attributed to Paul; the student is asked to assess the significance of the differences and to explain them. The usual scholarly explanation of the differences is that Paul is not the author; students are asked to take a tentative position for or against that explanation and to defend themselves. Other possible explanations of the differences are offered.

TIM3 asks the student to consider various historical differences between the pastoral epistles and other Pauline letters. In a number of ways the Church appears to have become more organized, more institutionalized by the time of the pastoral epistles than it was in Paul's day. TIM4 continues with historical differences and mentions some alleged theological and religious differences. Whether the student thinks that Paul did or did not write the pastorals, he or she is asked to defend that judgment against a hypothetical opponent.

TIM. REV is an optional review of all the different kinds of evidence that have been considered. The student is asked to give a long summary of the evidence. Then any items which the student omits are called to his or her attention. The student is asked to give examples to support general statements. Whether the student concludes that Paul is or is not the author, the computer presents objections to the student's point of view and invites reply.

Each segment in the series may be completed in approximately ten to twenty minutes.

SYNOP SERIES
by Bruce William Jones

The synoptic gospels, Matthew, Mark and Luke, have very close similarities in wording and in the order of events. A scholarly consensus has emerged that Mark was the first gospel and that the authors of Matthew and Luke used it as a source. In most introductory New Testament courses, students and instructors are content to accept that consensus unexamined. The SYNOP programs push beyond that acceptance to inspect the evidence and to help students evaluate the conclusion for themselves. They use the example of the three accounts in Matthew, Mark and Luke of the baptism of Jesus. Other examples may be added later to make the SYNOP series more detailed.

The SYNOP programs are more sophisticated, in my opinion, than the TIM series because the student is asked to make a more complicated series of judgments. First, the student must notice precisely what the verbal agreements and differences are. Then he or she must decide if the differences are sufficiently close to argue for literary dependence. Lastly, the student must decide which of the three came first, if there is in fact dependence. Such a judgment depends upon a careful consideration of the differences as well as the similarities.

The first SYNOP program helps students to notice what the similarities are and notes a few differences. It asks the student to make a long statement about the similarities he or she sees. Then the program has a dialogue based on that long statement, giving hints that point to observations the student has missed and raising supplementary questions to make the observations more precise.

In SYNOP2 the student is asked to list each instance in which two of the gospels agree but differ from a third. If he or she does not notice it without help, the computer points out that in these passages Matthew and Luke never agree against Mark. However, Luke shares common elements with Mark, and also Matthew shares common elements with Mark. These agreements may be depicted graphically in a little table at the student's option. On the basis of these agreements the student is asked which of the three is most likely to be the source for the other two and is asked to justify his or her answer.

The student may choose to end the program there or he or she can ask for an explanation of why most scholars judge Mark to be first. That explanation proceeds with questions to the student at each step.

CASTE
By Bruce William Jones

Students are asked a series of questions about the caste system in India, about the difference between "varna" and "jati," about the functions of the castes in Indian society, and about their inter-relationship as a social "body." If students identify the castes with English names, they are praised for their correct answers, but are also given the Sanskrit names. The student is asked his or her personal opinion about the caste system and whether he or she would like to be a part of it.

STAGES
By Bruce William Jones

Students are asked questions about the ashramadharmas--the four ideal stages of life--in Hinduism. Some introductory reading about the Hindu religion is presupposed, but students can complete the program with no prior background. Students may answer questions with English terminology or with a minimum of Sanskrit technical terms.

They are asked to name the stages and to describe them in their own words.

The program has an optional review of the English terms and then of the Sanskrit terms for the four stages.

It takes a student approximately fifteen minutes to complete the program, depending upon the student's speed and accuracy.

Using the Computer to Teach Methods
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Implementing a Project
74:04

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Appendix II. Statistical Analysis of Student Evaluations in Religious Studies 101, Introduction to Religion, Spring 1976.

A. Survey Results
B. CAI Tables
C. Tables of Responses To Small-group Discussions
D. Miscellaneous Tables
E. The Original Questionnaire
F. List of Tables

Appendix II. Statistical Analysis of Student Evaluations

A. Survey Results

At the end of spring quarter, 1976, a survey was taken of students in Religious Studies 101, Introduction to Religion, at Cal State, Bakersfield, concerning their use of CAI, their preferences among different learning techniques, the difficulty of the course, and their response to an experiment of using senior religious studies majors as discussion leaders. (Half the class were assigned to groups without leaders.) Thirty students answered the survey questions.

An analysis of their answers follows, with the warning that any conclusions are tentative since the sample was so small.

Religious Studies

Spring 1976
Bruce W. Jones

EVALUATION QUESTIONNAIRE

1. Approximately how many times have you used the TRY program?

six times	= 1 (3.3%)	twice	= 12 (40.0%)
five times	= 1 (3.3%)	once	= 5 (16.7%)
four times	= 2 (6.7%)	never	= 6 (20.0%)
three times	= 3 (10.0%)		

2. Approximately how many times have you used CASTE?

four times	= 2 (6.7%)	once	= 12 (40.0%)
three times	= 2 (6.7%)	never	= 3 (10.0%)
twice	= 11 (36.7%)		

3. How many times STAGES?

four times	= 1 (3.3%)	once	= 8 (26.7%)
three times	= 1 (3.3%)	never	= 16 (53.3%)
twice	= 4 (13.3%)		

4. (Total use of all programs, calculated)

nine or more	= 2 (6.7%)	four times	= 9 (30.0%)
eight times	= 1 (3.3%)	three times	= 5 (16.7%)
seven times	= 2 (6.7%)	twice	= 6 (20.0%)
six times	= 2 (6.7%)	once	= 0
five times	= 2 (6.7%)	none	= 1 (3.3%)

5. The printed instructions for using the computer were

very clear	= 21 (72.4%)	no response = 1
fairly clear	= 7 (24.1%)	
average	= 1 (3.4%)	
somewhat confusing	= 0	
very confusing	= 0	

6. In general, the questions and statements in the CASTE program were

very clear	= 9 (33.3%)	no response = 3
fairly clear	= 17 (63.0%)	
average	= 0	
somewhat confusing	= 1 (3.7%)	
very confusing	= 0	

7. The questions and statements in STAGES were

very clear	= 3 (18.7%)	no response = 14
fairly clear	= 11 (68.8%)	
average	= 2 (12.5%)	
somewhat confusing	= 0	
very confusing	= 0	

8. As an aid to learning, I consider the computer exercises to be

very helpful	= 12 (41.4%)	no response = 1
fairly helpful	= 17 (58.6%)	
not too helpful	= 0	
not helpful at all	= 0	

9. The TRY program was

helpful to me in becoming more familiar with the computer	= 21 (87.5%)
fun, but not particularly helpful	= 3 (12.5%)
a waste of time	= 0
no response	= 6

10. Before I did the CASTE program, I thought that I did/did not understand the caste system fairly well.

did	= 15 (55.6%)	no response = 3
did not	= 12 (44.4%)	

11. After doing the CASTE program, I think I understand the caste system

less that I did before	= 0	no response = 3
about as well as I did before	= 5 (18.5%)	
a little better than before	= 11 (40.7%)	
much better than before	= 11 (40.7%)	

12. Before I did the STAGES program, I thought that I did/did not understand the Hindu "stages of life" fairly well.

did	= 7 (41.2%)	no response = 13
did not	= 10 (58.8%)	

13. After doing STAGES, I think I understand the "stages of life"

less than I did before	= 0	no response = 15
about as well as I did before	= 3 (20.0%)	
a little better than before	= 4 (26.7%)	
much better than before	= 8 (53.3%)	

14-22. In the future, if I could choose among different learning techniques, I would rank my choices as follows (The mean is given at the left; at the right, the number of persons ranking the item as first choice, second, etc., is given in order.):

3.233	lectures	13,5,1,1,3,3,1,0,3
3.800	assigned reading	3,5,7,5,3,4,3,0,0
4.200	seeing films and slides	4,5,3,5,7,0,1,4,1
4.233	discussion in a small (4 to 8 students) group	6,3,4,3,5,2,3,3,1
4.767	computer-assisted instruction	1,4,7,3,3,4,4,2,2
5.333	discussion in a large group	1,3,2,4,5,6,4,3,2
5.667	writing papers	0,4,3,4,1,6,5,2,5
6.400	modularized, self-paced instruction	4,0,1,3,1,2,4,7,8
6.633	individual tutorial	2,0,2,2,2,3,4,8,7

23. My small discussion group did/did not have a senior student appointed as a leader.

did	= 15 (50.0%)
did not	= 15 (50.0%)

24. I would have preferred to be in a group with/without a senior student appointed as leader.

with	= 14 (51.9%)	no response = 3
without	= 13 (48.1%)	

25. If you had an appointed leader, please evaluate his/her performance:

very helpful	= 5 (16.7%)	(31.3%)
somewhat helpful	= 7 (23.3%)	(43.8%)
made no difference to the success of the group	= 2 (6.7%)	(12.5%)
somewhat a hindrance to the group	= 2 (6.7%)	(12.5%)
a considerable hindrance to the group	= 0	
I had no leader	= 14 (46.7%)	

26. I wish that we had used the small group discussions

much more than we did	= 1 (3.3%)
somewhat more	= 8 (26.7%)
about as often as we did	= 15 (50.0%)
less than we did	= 5 (16.7%)
not at all	= 1 (3.3%)

27. In general, the lectures in class have been

much too difficult	= 1 (3.3%)
somewhat difficult	= 5 (16.7%)
at about the right level for me	= 20 (66.7%)
not challenging enough for me	= 4 (13.3%)
far too easy	= 0

28. The reading assignments in Smith, The Religions of Man, have been

much too difficult	= 0
somewhat difficult	= 13 (43.3%)
at about the right level for me	= 16 (53.3%)
not challenging enough for me	= 1 (3.3%)
far too easy	= 0

29. The reading assignments in Streng, Ways of Being Religious, have been

much too difficult	= 3 (10.0%)
somewhat difficult	= 18 (60.0%)
at about the right level for me	= 8 (26.7%)
not challenging enough for me	= 1 (3.3%)
far too easy	= 0

30. Compared to other courses I have taken at CSCB, this course takes

much more time	= 2 (6.7%)
somewhat more time	= 10 (33.3%)
about the same amount of time	= 16 (53.3%)
somewhat less time	= 2 (6.7%)
much less time	= 0

31. On the average, preparation and studying and writing for this class takes about

0 to 2 hours per week	= 0	no response = 1
2 to 4 hours per week	= 8 (27.6%)	
4 to 6 hours per week	= 13 (44.8%)	
6 to 8 hours per week	= 7 (24.1%)	
more than 8 hours per week	= 1 (3.4%)	

32. I expect to receive the following grade in this class:

A = 5 (18.5%) no response = 3
B = 17 (63.0%)
C = 5 (18.5%)
D = 0
F = 0

(The actual grade distribution was):

A = 5 (14.3%)
B = 15 (42.9%)
C = 8 (22.9%)
D = 0
F = 1 (2.9%)
Inc = 6 (17.1%)

(Because of anonymity in the questionnaire, there is no way to know how many individuals received the grades they predicted.)

B. CAI Tables

More than two hundred and fifty cross-tabulations of these results were made. Some of the more significant ones are reported here.

Tables 3 and 4 suggest, tentatively, that CAI is especially valuable for students who need remedial work. CAI may be particularly useful for such students because it enables them to do an exercise repeatedly, without embarrassment, until they feel competent.

While CAI is generally well received by all students, Tables 14-17 suggest that there will be even more enthusiastic response from students who either dislike reading or find reading to be difficult.

The students who used the computer exercises repeatedly were more likely to say that they were "very helpful," whereas the less frequent users tended to consider them "fairly helpful " (Table 1).

Table 1. Comparison of frequency of usage of all computer exercises (item 4) with attitudes toward those exercises (question 8).

QUES04	COUNT / ROW PCT / COL PCT / TOT PCT	QUES08 VERY HELPFUL 1.	QUES08 FAIRLY HELPFUL 2.	ROW TOTAL
2.		1	5	6
		16.7	83.3	20.7
		8.3	29.4	
		3.4	17.2	
3.		0	5	5
		0.0	100.0	17.2
		0.0	29.4	
		0.0	17.2	
4.		4	5	9
		44.4	55.6	31.0
		33.3	29.4	
		13.8	17.2	
5.		2	0	2
		100.0	0.0	6.9
		16.7	0.0	
		6.9	0.0	
6.		1	1	2
		50.0	50.0	6.9
		8.3	5.9	
		3.4	3.4	
7.		2	0	2
		100.0	0.0	6.9
		16.7	0.0	
		6.9	0.0	
8.		0	1	1
		0.0	100.0	3.4
		0.0	5.9	
		0.0	3.4	
9. MORE THAN 8		2	0	2
		100.0	0.0	6.9
		16.7	0.0	
		6.9	0.0	
COLUMN TOTAL		12	17	29
		41.4	58.6	100.0

Significance = 0.0454
Number of Missing Observations = 1

Those who used the programs the most also tended to give CAI a higher relative ranking among their choices of learning techniques.

Table 2. Comparison of rankings of CAI as a method of learning (question 17) with frequency of usage of all computer programs (item 4).

17. Rank given to CAI. 4. Total number of CAI programs used.

	0	1	2	3	4	5	6	7	8	more than 8	Row Total
1										1	1
2			1		1	1				1	4
3			1	1	2	1	1	1			7
4			1		1			1			3
5					2		1				3
6				1	2				1		4
7				3	1						4
8			2								2
9	1		1								2
Column Total	1		6	5	9	2	2	2	1	2	30

Significance = 0.1466

Those who did not understand the caste system originally benefited the most from using the CASTE program, even though those who thought they understood it initially showed some improvement.

Table 3. Comparison of prior understanding of the caste system (question 10) with later understanding, after using CASTE program (question 11).

		QUES11			
	COUNT / ROW PCT / COL PCT / TOT PCT	AS WELL AS BEFOR 2.	A LITTLE BETTER 3.	MUCH BETTER 4.	ROW TOTAL
QUES10					
DID	1.	4 26.7 80.0 14.8	8 53.3 72.7 29.6	3 20.0 27.3 11.1	15 55.6
DID NOT	2.	1 8.3 20.0 3.7	3 25.0 27.3 11.1	8 66.7 72.7 29.6	12 44.4
	COLUMN TOTAL	5 18.5	11 40.7	11 40.7	27 100.0

Significance = 0.0477
Number of Missing Observations = 3

Results from using the STAGES program are even more dramatic, but the number of respondents is much smaller.

Table 4. Comparison of prior understanding of the Hindu stages of life (question 12) with later understanding, after using STAGES program (question 13).

		QUES13			
	COUNT / ROW PCT / COL PCT / TOT PCT	AS WELL AS BEFOR 2.	A LITTLE BETTER 3.	MUCH BETTER 4.	ROW TOTAL
QUES12					
DID	1.	3 60.0 100.0 20.0	1 20.0 25.0 6.7	1 20.0 12.5 6.7	5 33.3
DID NOT	2.	0 0.0 0.0 0.0	3 30.0 75.0 20.0	7 70.0 87.5 46.7	10 66.7
	COLUMN TOTAL	3 20.0	4 26.7	8 53.3	15 100.0

Significance = 0.0214
Number of Missing Observations = 15

Nine out of the eleven students who considered this course to be more demanding than other CSCB courses said that they understood the caste system adequately before doing the CASTE program. Those who did not understand the caste system to their own satisfaction were far more likely (83.3%) to consider the course comparable to others at CSCB. I still do not understand the significance of this rather high correlation. The comparison to those who did and did not understand the Hindu states of life was not so remarkable.

Table 5. Comparison of relative time spent on this class (question 30) with prior understanding of the caste system (question 10).

QUES30	QUES10 DID (1.)	QUES10 DID NOT (2.)	ROW TOTAL
1. MUCHMORE TIME	0 0.0 0.0 0.0	2 100.0 16.7 7.4	2 7.4
2. SOMEWHAT MORE	9 100.0 60.0 33.3	0 0.0 0.0 0.0	9 33.3
3. ABOUT THE SAME	4 28.6 26.7 14.8	10 71.4 83.3 37.0	14 51.9
4. SOMEWHAT LESS	2 100.0 13.3 7.4	0 0.0 0.0 0.0	2 7.4
COLUMN TOTAL	15 55.6	12 44.4	27 100.0

Significance = 0.0015
Number of Missing Observations = 3

Table 6. Comparison of relative time spent on this class (question 30) with prior understanding of the stages of life (question 12).

QUES30		QUES12 DID 1.	DID NOT 2.	ROW TOTAL
MUCHMORE TIME	1.	0	1	1
		0.0	100.0	5.9
		0.0	10.0	
		0.0	5.9	
SOMEWHAT MORE	2.	2	2	4
		50.0	50.0	23.5
		28.6	20.0	
		11.8	11.8	
ABOUT THE SAME	3.	3	7	10
		30.0	70.0	58.8
		42.9	70.0	
		17.6	41.2	
SOMEWHAT LESS	4.	2	0	2
		100.0	0.0	11.8
		28.6	0.0	
		11.8	0.0	
COLUMN TOTAL		7	10	17
		41.2	58.8	100.0

Significance = 0.2405
Number of Missing Observations = 13

All of those (14 students) who said that they understood the caste system adequately at the beginning reported that they worked an average of two to six hours weekly on the course. Those who did not understand were likely to spend more time. Those who did not understand the stages of life (60% of them) were also more likely to spend six to eight hours weekly on the course.

Table 7. Comparison of hours spent on this class (question 31) with prior understanding of the caste system (question 10).

		QUES10		
	COUNT / ROW PCT / COL PCT / TOT PCT	DID 1.	DID NOT 2.	ROW TOTAL
QUES31				
2 TO 4 HOURS	2.	6 85.7 42.9 23.1	1 14.3 8.3 3.8	7 26.9
4 TO 6 HOURS	3.	8 66.7 57.1 30.8	4 33.3 33.3 15.4	12 46.2
6 TO 8 HOURS	4.	0 0.0 0.0 0.0	6 100.0 50.0 23.1	6 23.1
OVER 8 HOURS	5.	0 0.0 0.0 0.0	1 100.0 8.3 3.8	1 3.8
COLUMN TOTAL		14 53.8	12 46.2	26 100.0

Significance = 0.0080
Number of Missing Observations = 4

Table 8. Comparison of hours spent on this class (question 31) with prior understanding of the stages of life (question 12).

QUES31	COUNT / ROW PCT / COL PCT / TOT PCT	QUES12 DID 1.	QUES12 DID NOT 2.	ROW TOTAL
2 TO 4 HOURS	2.	1	1	2
		50.0	50.0	11.8
		14.3	10.0	
		5.9	5.9	
4 TO 6 HOURS	3.	5	3	8
		62.5	37.5	47.1
		71.4	30.0	
		29.4	17.6	
6 TO 8 HOURS	4.	1	6	7
		14.3	85.7	41.2
		14.3	60.0	
		5.9	35.3	
	COLUMN TOTAL	7	10	17
		41.2	58.8	100.0

Significance = 0.1607
Number of Missing Observations = 13

I tried to find some characteristic that distinguished those who noted the greatest improvement in understanding after using the computer programs (questions 11 and 13), but with some difficulty. Part of the problem was that so few respondents (18.5% and 20%) noted no significant improvement. The comparisons with expected grade in the class were not very revealing (significance = 0.9158 and 0.7174). One positive correlation was found with question 8 (how helpful were the computer exercises?), but it could be argued that all three questions were asking the same thing -- question 8 in more general terms.

Table 9. Comparison of later understanding of the caste system (question 11) with attitudes to computer exercises (question 8).

		QUES08		
	COUNT / ROW PCT / COL PCT / TOT PCT	VERY HELPFUL 1.	FAIRLY HELPFUL 2.	ROW TOTAL
QUES11				
2. AS WELL AS BEFOR		0	5	5
		0.0	100.0	18.5
		0.0	33.3	
		0.0	18.5	
3. A LITTLE BETTER		5	6	11
		45.5	54.5	40.7
		41.7	40.0	
		18.5	22.2	
4. MUCH BETTER		7	4	11
		63.6	36.4	40.7
		58.3	26.7	
		25.9	14.8	
COLUMN TOTAL		12	15	27
		44.4	55.6	100.0

Significance = 0.0594
Number of Missing Observations = 3

Table 10. Comparison of later understanding of the stages of life (question 13) with attitudes to computer exercises (question 8).

QUES13	COUNT / ROW PCT / COL PCT / TOT PCT	QUES08 VERY HELPFUL 1.	QUES08 FAIRLY HELPFUL 2.	ROW TOTAL
2. AS WELL AS BEFOR		1	2	3
		33.3	66.7	20.0
		11.1	33.3	
		6.7	13.3	
3. A LITTLE BETTER		3	1	4
		75.0	25.0	26.7
		33.3	16.7	
		20.0	6.7	
4. MUCH BETTER		5	3	8
		62.5	37.5	53.3
		55.6	50.0	
		33.3	20.0	
COLUMN TOTAL		9	6	15
		60.0	40.0	100.0

Significance = 0.5260
Number of Missing Observations = 15

Those few students who favor individual tutorials as a method of instruction were more likely to report that their understanding was "much better" after using the CAI exercises. Those who noted little change tended to dislike tutorials.

Table 11. Comparison of tutorial rankings (question 21) with later understanding of the caste system (question 11).

QUES21 \ QUES11	AS WELL AS BEFOR 2.	A LITTLE BETTER 3.	MUCH BETTER 4.	ROW TOTAL
1.	0 0.0 0.0 0.0	1 50.0 9.1 3.7	1 50.0 9.1 3.7	2 7.4
3.	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 100.0 9.1 3.7	1 3.7
4.	1 50.0 20.0 3.7	0 0.0 0.0 0.0	1 50.0 9.1 3.7	2 7.4
5.	1 100.0 20.0 3.7	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 3.7
6.	0 0.0 0.0 0.0	2 66.7 18.2 7.4	1 33.3 9.1 3.7	3 11.1
7.	1 33.3 20.0 3.7	1 33.3 9.1 3.7	1 33.3 9.1 3.7	3 11.1
8.	1 12.5 20.0 3.7	3 37.5 27.3 11.1	4 50.0 36.4 14.8	8 29.6
9.	1 14.3 20.0 3.7	4 57.1 36.4 14.8	2 28.6 18.2 7.4	7 25.9
COLUMN TOTAL	5 18.5	11 40.7	11 40.7	27 100.0

Significance = 0.6944
Number of Missing Observations = 3

Table 12. Comparison of tutorial rankings (question 21) with later understanding of the stages of life (question 13).

QUES21 \ QUES13	2. AS WELL AS BEFOR	3. A LITTLE BETTER	4. MUCH BETTER	ROW TOTAL
1.	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 100.0 12.5 6.7	1 6.7
3.	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 100.0 12.5 6.7	1 6.7
5.	0 0.0 0.0 0.0	1 100.0 25.0 6.7	0 0.0 0.0 0.0	1 6.7
6.	0 0.0 0.0 0.0	0 0.0 0.0 0.0	2 100.0 25.0 13.3	2 13.3
7.	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 100.0 12.5 6.7	1 6.7
8.	1 16.7 33.3 6.7	2 33.3 50.0 13.3	3 50.0 37.5 20.0	6 40.0
9.	2 66.7 66.7 13.3	1 33.3 25.0 6.7	0 0.0 0.0 0.0	3 20.0
COLUMN TOTAL	3 20.0	4 26.7	8 53.3	15 100.0

Significance = 0.4307
Number of Missing Observations = 15

Those who gave CAI a high rank as a learning technique tended to be the students who found the programs to be "very helpful" as an aid to learning.

Table 13. Comparison of CAI rankings (question 17) with attitudes to computer exercises (question 8).

QUES17	QUES08 VERY HELPFUL 1.	FAIRLY HELPFUL 2.	ROW TOTAL
1.	1	0	1
	100.0	0.0	3.4
	8.3	0.0	
	3.4	0.0	
2.	3	1	4
	75.0	25.0	13.8
	25.0	5.9	
	10.3	3.4	
3.	6	1	7
	85.7	14.3	24.1
	50.0	5.9	
	20.7	3.4	
4.	2	1	3
	66.7	33.3	10.3
	16.7	5.9	
	6.9	3.4	
5.	0	3	3
	0.0	100.0	10.3
	0.0	17.6	
	0.0	10.3	
6.	0	4	4
	0.0	100.0	13.8
	0.0	23.5	
	0.0	13.8	
7.	0	4	4
	0.0	100.0	13.8
	0.0	23.5	
	0.0	13.8	
8.	0	2	2
	0.0	100.0	6.9
	0.0	11.8	
	0.0	6.9	
9.	0	1	1
	0.0	100.0	3.4
	0.0	5.9	
	0.0	3.4	
COLUMN TOTAL	12	17	29
	41.4	58.6	100.0

Significance = 0.0118
Number of Missing Observations = 1

There was some negative correlation between the students' ranking of CAI and of assigned reading as learning techniques.

Table 14. Comparison of CAI rankings (question 17) with reading rankings (question 20).

CAI Rank \ Reading Rank	1	2	3	4	5	6	7	8	9	Row Total
1			1							1
2			2			1	1			4
3	1			1	2	2	1			7
4	1		1			1				3
5			1	2						3
6		3		1						4
7	1	1	1	1						4
8					1		1			2
9		1	1							2
Column Total	3	5	7	5	3	4	3			30

Significance = 0.3914

Those who gave CAI a high rank as a learning technique found some difficulty with their reading. Two books were used for purposes of comparison. The first, by Huston Smith, is the simpler of the two; it is based on lectures originally prepared for educational TV, and could be considered "semi-popular." The book edited by Frederick Streng et al.

is an anthology that contains short readings from many sources, some of them fairly difficult. The strongest correlation is found with the easier book. Those who had trouble with it are probably poor readers, and are more likely to turn to CAI for help.

Table 15. Comparison of CAI rankings (question 17) with difficulty in reading Smith, Religions of Man (question 28).

OUES17 \ OUES28	SOMEWHAT DIFFICLT 2.	ABOUT RIGHT 3.	TOO EASY FOR ME 4.	ROW TOTAL
1.	1	0	0	1
	100.0	0.0	0.0	3.3
	7.7	0.0	0.0	
	3.3	0.0	0.0	
2.	3	1	0	4
	75.0	25.0	0.0	13.3
	23.1	6.3	0.0	
	10.0	3.3	0.0	
3.	2	5	0	7
	28.6	71.4	0.0	23.3
	15.4	31.2	0.0	
	6.7	16.7	0.0	
4.	2	1	0	3
	66.7	33.3	0.0	10.0
	15.4	6.3	0.0	
	6.7	3.3	0.0	
5.	2	1	0	3
	66.7	33.3	0.0	10.0
	15.4	6.3	0.0	
	6.7	3.3	0.0	
6.	1	3	0	4
	25.0	75.0	0.0	13.3
	7.7	18.7	0.0	
	3.3	10.0	0.0	
7.	1	3	0	4
	25.0	75.0	0.0	13.3
	7.7	18.7	0.0	
	3.3	10.0	0.0	
8.	1	1	0	2
	50.0	50.0	0.0	6.7
	7.7	6.3	0.0	
	3.3	3.3	0.0	
9.	0	1	1	2
	0.0	50.0	50.0	6.7
	0.0	6.3	100.0	
	0.0	3.3	3.3	
COLUMN TOTAL	13	16	1	30
	43.3	53.3	3.3	100.0

Significance = 0.1782

Table 16. Comparison of CAI rankings (question 17) with difficulty in reading Streng, Ways of Being Religious (question 29).

QUES17 \ QUES29	1. MUCH TOO DIFFICLT	2. SOMEWHAT DIFFICLT	3. ABOUT RIGHT	4. TOO EASY FOR ME	ROW TOTAL
1.	0 / 0.0 / 0.0 / 0.0	0 / 0.0 / 0.0 / 0.0	1 / 100.0 / 12.5 / 3.3	0 / 0.0 / 0.0 / 0.0	1 / 3.3
2.	1 / 25.0 / 33.3 / 3.3	2 / 50.0 / 11.1 / 6.7	1 / 25.0 / 12.5 / 3.3	0 / 0.0 / 0.0 / 0.0	4 / 13.3
3.	0 / 0.0 / 0.0 / 0.0	5 / 71.4 / 27.8 / 16.7	2 / 28.6 / 25.0 / 6.7	0 / 0.0 / 0.0 / 0.0	7 / 23.3
4.	1 / 33.3 / 33.3 / 3.3	1 / 33.3 / 5.6 / 3.3	1 / 33.3 / 12.5 / 3.3	0 / 0.0 / 0.0 / 0.0	3 / 10.0
5.	0 / 0.0 / 0.0 / 0.0	3 / 100.0 / 16.7 / 10.0	0 / 0.0 / 0.0 / 0.0	0 / 0.0 / 0.0 / 0.0	3 / 10.0
6.	1 / 25.0 / 33.3 / 3.3	1 / 25.0 / 5.6 / 3.3	2 / 50.0 / 25.0 / 6.7	0 / 0.0 / 0.0 / 0.0	4 / 13.3
7.	0 / 0.0 / 0.0 / 0.0	3 / 75.0 / 16.7 / 10.0	1 / 25.0 / 12.5 / 3.3	0 / 0.0 / 0.0 / 0.0	4 / 13.3
8.	0 / 0.0 / 0.0 / 0.0	1 / 50.0 / 5.6 / 3.3	0 / 0.0 / 0.0 / 0.0	1 / 50.0 / 100.0 / 3.3	2 / 6.7
9.	0 / 0.0 / 0.0 / 0.0	2 / 100.0 / 11.1 / 6.7	0 / 0.0 / 0.0 / 0.0	0 / 0.0 / 0.0 / 0.0	2 / 6.7
COLUMN TOTAL	3 / 10.0	18 / 60.0	8 / 26.7	1 / 3.3	30 / 100.0

Significance = 0.2769

Those who favored assigned reading as a learning technique were more likely to say that the programs were "fairly helpful." Those who disliked assigned reading tended to consider the programs "very helpful."

Table 17. Comparison of rankings of assigned reading as a method of learning (question 20) with attitudes to computer exercises (question 8).

QUES20	QUES08 VERY HELPFUL 1.	FAIRLY HELPFUL 2.	ROW TOTAL
1.	0 0.0 0.0 0.0	3 100.0 17.6 10.3	3 10.3
2.	0 0.0 0.0 0.0	4 100.0 23.5 13.8	4 13.8
3.	4 57.1 33.3 13.8	3 42.9 17.6 10.3	7 24.1
4.	1 20.0 8.3 3.4	4 80.0 23.5 13.8	5 17.2
5.	2 66.7 16.7 6.9	1 33.3 5.9 3.4	3 10.3
6.	3 75.0 25.0 10.3	1 25.0 5.9 3.4	4 13.8
7.	2 66.7 16.7 6.9	1 33.3 5.9 3.4	3 10.3
COLUMN TOTAL	12 41.4	17 58.6	29 100.0

Significance = 0.1227
Number of Missing Observations = 1

Admittedly, there is minor difference between "helpful" and "very helpful," but to some degree the four previous tables suggest that CAI is received particularly well by students who don't read well or who dislike reading. This is especially interesting because students must read all of the CAI instructions, questions and comments. However, reading on a cathode ray screen does not seem as difficult or as unpleasant to them. If these tentative suggestions prove to be correct with larger numbers of students, then CAI may prove to be a very useful tool for improving reading skills and reading attitudes.

C. Tables of Responses to Small-Group Discussions

During spring quarter, 1976, three senior students, majors or concentrators in religious studies, served as leaders in three small discussion groups which met occasionally as part of Religious Studies 101, Introduction to Religion. There were also three small discussion groups within the class without assigned discussion leaders. These latter groups were usually given a few questions about the reading or about the day's topic to help them begin their discussions, but they conducted the sessions themselves.

Students in the course who like lecturing prefer to have a leader in group discussion. (78.5% of those who said they preferred a group with a student leader picked "lectures" as a first or second choice out of the nine different learning techniques.) This relative consistency seems to point toward one group of students who associate learning with an

authority figure or at least who prefer someone else to take the initiative to teach them.

Table 18. Comparison of rankings of lectures as a method of learning (question 14) with preference in small group leadership (question 24).

QUES14	QUES24		
COUNT / ROW PCT / COL PCT / TOT PCT	PREFER A LEADER 1.	PREFER WITHOUT 2.	ROW TOTAL
1.	8 66.7 57.1 29.6	4 33.3 30.8 14.8	12 44.4
2.	3 60.0 21.4 11.1	2 40.0 15.4 7.4	5 18.5
3.	0 0.0 0.0 0.0	1 100.0 7.7 3.7	1 3.7
4.	0 0.0 0.0 0.0	1 100.0 7.7 3.7	1 3.7
5.	1 50.0 7.1 3.7	1 50.0 7.7 3.7	2 7.4
6.	1 50.0 7.1 3.7	1 50.0 7.7 3.7	2 7.4
7.	1 100.0 7.1 3.7	0 0.0 0.0 0.0	1 3.7
9.	0 0.0 0.0 0.0	3 100.0 23.1 11.1	3 11.1
COLUMN TOTAL	14 51.9	13 48.1	27 100.0

Significance = 0.3781
Number or Missing Observations = 3

As noted on question 25, most students gave a high evaluation to the leaders' performance. I could not find any significant correlations between that item and other questions, except to note that the evaluations by readers were consistently higher than those by non-readers. All of the students (11) who chose "assigned reading" as one of their first four choices of learning technique gave their leaders a rating of "very helpful" or "somewhat helpful." Four out of the five who ranked assigned reading as a fifth choice or lower said that their leaders "made no difference to the success of the group" or were a slight hindrance. (14 respondents were in leaderless groups) It is possible that some of those who were dissatisfied with their groups' leadership did not do their reading or did not do it carefully, and thus were not equipped to benefit from a discussion which depended heavily on reading.

Table 19. Comparison of rankings of assigned reading as a method of learning (question 20) with evaluation of student leaders (question 25).

QUES20	COUNT / ROW PCT / COL PCT / TOT PCT	QUES25 1. VERY HELPFUL	2. SOMEWHAT HELPFUL	3. MADE NO DIFFEREN	4. HINDERED SOMEWHAT	6. HAD NO LEADER	ROW TOTAL
1.		2	1	0	0	0	3
		66.7	33.3	0.0	0.0	0.0	10.0
		40.0	14.3	0.0	0.0	0.0	
		6.7	3.3	0.0	0.0	0.0	
2.		1	2	0	0	2	5
		20.0	40.0	0.0	0.0	40.0	16.7
		20.0	28.6	0.0	0.0	14.3	
		3.3	6.7	0.0	0.0	6.7	
3.		1	2	0	0	4	7
		14.3	28.6	0.0	0.0	57.1	23.3
		20.0	28.6	0.0	0.0	28.6	
		3.3	6.7	0.0	0.0	13.3	
4.		0	2	0	0	3	5
		0.0	40.0	0.0	0.0	60.0	16.7
		0.0	28.6	0.0	0.0	21.4	
		0.0	6.7	0.0	0.0	10.0	
5.		1	0	1	1	0	3
		33.3	0.0	33.3	33.3	0.0	10.0
		20.0	0.0	50.0	50.0	0.0	
		3.3	0.0	3.3	3.3	0.0	
6.		0	0	1	1	2	4
		0.0	0.0	25.0	25.0	50.0	13.3
		0.0	0.0	50.0	50.0	14.3	
		0.0	0.0	3.3	3.3	6.7	
7.		0	0	0	0	3	3
		0.0	0.0	0.0	0.0	100.0	10.0
		0.0	0.0	0.0	0.0	21.4	
		0.0	0.0	0.0	0.0	10.0	
COLUMN TOTAL		5	7	2	2	14	30
		16.7	23.3	6.7	6.7	46.7	100.0

Significance = 0.2079

It was primarily the readers who asked for more small group discussions. (7 asked for more, 3 for fewer. The non-readers were about evenly divided, 2 to 3; 15 of the students had asked for no change in the number of small group discussions.)

Table 20. Comparison of rankings of assigned reading (question 20) with desire for more or fewer small group discussions (question 26).

QUES20	QUES26 1. MUCH MORE	2. SOMEWHAT MORE	3. NO CHANGE	4. LESS OFTEN	5. NOT AT ALL	ROW TOTAL
1.	1	1	1	0	0	3
	33.3	33.3	33.3	0.0	0.0	10.0
	100.0	12.5	6.7	0.0	0.0	
	3.3	3.3	3.3	0.0	0.0	
2.	0	1	3	1	0	5
	0.0	20.0	60.0	20.0	0.0	16.7
	0.0	12.5	20.0	20.0	0.0	
	0.0	3.3	10.0	3.3	0.0	
3.	0	1	5	1	0	7
	0.0	14.3	71.4	14.3	0.0	23.3
	0.0	12.5	33.3	20.0	0.0	
	0.0	3.3	16.7	3.3	0.0	
4.	0	3	1	1	0	5
	0.0	60.0	20.0	20.0	0.0	16.7
	0.0	37.5	6.7	20.0	0.0	
	0.0	10.0	3.3	3.3	0.0	
5.	0	1	1	1	0	3
	0.0	33.3	33.3	33.3	0.0	10.0
	0.0	12.5	6.7	20.0	0.0	
	0.0	3.3	3.3	3.3	0.0	
6.	0	1	1	1	1	4
	0.0	25.0	25.0	25.0	25.0	13.3
	0.0	12.5	6.7	20.0	100.0	
	0.0	3.3	3.3	3.3	3.3	
7.	0	0	3	0	0	3
	0.0	0.0	100.0	0.0	0.0	10.0
	0.0	0.0	20.0	0.0	0.0	
	0.0	0.0	10.0	0.0	0.0	
COLUMN TOTAL	1	8	15	5	1	30
	3.3	26.7	50.0	16.7	3.3	100.0

Significance = 0.4218

Three of the four students who picked "modularized, self-paced instruction" as a first choice asked for fewer small group discussions (the lone-learners?).

Out of the 19 students who ranked it as one of their last three choices, two asked for fewer group discussions and nine asked for more.

Table 21. Comparison of rankings of modularized instruction (question 22) with desire for more or fewer small group discussions (question 26).

QUES22 \ QUES26	1. MUCH MORE	2. SOMEWHAT MORE	3. NO CHANGE	4. LESS OFTEN	5. NOT AT ALL	ROW TOTAL
1.	0	0	1	2	1	4
	0.0	0.0	25.0	50.0	25.0	13.3
	0.0	0.0	6.7	40.0	100.0	
	0.0	0.0	3.3	6.7	3.3	
3.	0	0	1	0	0	1
	0.0	0.0	100.0	0.0	0.0	3.3
	0.0	0.0	6.7	0.0	0.0	
	0.0	0.0	3.3	0.0	0.0	
4.	0	0	3	0	0	3
	0.0	0.0	100.0	0.0	0.0	10.0
	0.0	0.0	20.0	0.0	0.0	
	0.0	0.0	10.0	0.0	0.0	
5.	0	0	0	1	0	1
	0.0	0.0	0.0	100.0	0.0	3.3
	0.0	0.0	0.0	20.0	0.0	
	0.0	0.0	0.0	3.3	0.0	
6.	0	0	2	0	0	2
	0.0	0.0	100.0	0.0	0.0	6.7
	0.0	0.0	13.3	0.0	0.0	
	0.0	0.0	6.7	0.0	0.0	
7.	0	2	1	1	0	4
	0.0	50.0	25.0	25.0	0.0	13.3
	0.0	25.0	6.7	20.0	0.0	
	0.0	6.7	3.3	3.3	0.0	
8.	0	4	2	1	0	7
	0.0	57.1	28.6	14.3	0.0	23.3
	0.0	50.0	13.3	20.0	0.0	
	0.0	13.3	6.7	3.3	0.0	
9.	1	2	5	0	0	8
	12.5	25.0	62.5	0.0	0.0	26.7
	100.0	25.0	33.3	0.0	0.0	
	3.3	6.7	16.7	0.0	0.0	
COLUMN TOTAL	1	8	15	5	1	30
	3.3	26.7	50.0	16.7	3.3	100.0

Significance = 0.3539

The students who had an appointed student leader in their groups preferred to be in such groups by a nine to six margin. Those who did not have appointed leaders preferred not to. I suppose this proves conclusively that people prefer what is familiar to them.

Table 22. Comparison of presence of leader (question 23) with preference in group leadership (question 24).

QUES23	QUES24		
COUNT / ROW PCT / COL PCT / TOT PCT	PREFER A LEADER 1.	PREFER WITHOUT 2.	ROW TOTAL
DID 1.	9	6	15
	60.0	40.0	55.6
	64.3	46.2	
	33.3	22.2	
DID NOT 2.	5	7	12
	41.7	58.3	44.4
	35.7	53.8	
	18.5	25.9	
COLUMN TOTAL	14	13	27
	51.9	48.1	100.0

Number of Missing Observations = 3

To a slight degree, students who preferred to be in leaderless groups considered this class to be a little more demanding than other courses.

Table 23. Comparison of relative time spent on this class (question 30) with preference in group leadership (question 24).

QUES30	QUES24 PREFER A LEADER 1.	QUES24 PREFER WITHOUT 2.	ROW TOTAL
1. MUCHMORE TIME	0 0.0 0.0 0.0	2 100.0 15.4 7.4	2 7.4
2. SOMEWHAT MORE	3 37.5 21.4 11.1	5 62.5 38.5 18.5	8 29.6
3. ABOUT THE SAME	9 60.0 64.3 33.3	6 40.0 46.2 22.2	15 55.6
4. SOMEWHAT LESS	2 100.0 14.3 7.4	0 0.0 0.0 0.0	2 7.4
COLUMN TOTAL	14 51.9	13 48.1	27 100.0

Significance = 0.1668
Number of Missing Observations = 3

Students who expected A's and B's were more likely to prefer small discussion groups as a way of learning than C students were. All of the students who wished for fewer small group discussions were B or C students.

Table 24. Comparison of ranking of small group discussions (question 16) with expected grade (question 32).

QUES16 \ QUES32	A (1.)	B (2.)	C (3.)	ROW TOTAL
1.	1 20.0 20.0 3.7	4 80.0 23.5 14.8	0 0.0 0.0 0.0	5 18.5
2.	0 0.0 0.0 0.0	3 100.0 17.6 11.1	0 0.0 0.0 0.0	3 11.1
3.	1 25.0 20.0 3.7	2 50.0 11.8 7.4	1 25.0 20.0 3.7	4 14.8
4.	2 100.0 40.0 7.4	0 0.0 0.0 0.0	0 0.0 0.0 0.0	2 7.4
5.	1 25.0 20.0 3.7	2 50.0 11.8 7.4	1 25.0 20.0 3.7	4 14.8
6.	0 0.0 0.0 0.0	1 50.0 5.9 3.7	1 50.0 20.0 3.7	2 7.4
7.	0 0.0 0.0 0.0	2 66.7 11.8 7.4	1 33.3 20.0 3.7	3 11.1
8.	0 0.0 0.0 0.0	2 66.7 11.8 7.4	1 33.3 20.0 3.7	3 11.1
9.	0 0.0 0.0 0.0	1 100.0 5.9 3.7	0 0.0 0.0 0.0	1 3.7
COLUMN TOTAL	5 18.5	17 63.0	5 18.5	27 100.0

Significance = 0.4376
Number of Missing Observations = 3

Table 25. Comparison of desire for more or fewer small group discussions (question 26) with expected grade (question 32).

QUES26	COUNT / ROW PCT / COL PCT / TOT PCT	QUES32 A 1.	B 2.	C 3.	ROW TOTAL
MUCH MORE	1.	0 0.0 0.0 0.0	1 100.0 5.9 3.7	0 0.0 0.0 0.0	1 3.7
SOMEWHAT MORE	2.	1 14.3 20.0 3.7	5 71.4 29.4 18.5	1 14.3 20.0 3.7	7 25.9
NO CHANGE	3.	4 30.8 80.0 14.8	6 46.2 35.3 22.2	3 23.1 60.0 11.1	13 48.1
LESS OFTEN	4.	0 0.0 0.0 0.0	5 100.0 29.4 18.5	0 0.0 0.0 0.0	5 18.5
NOT AT ALL	5.	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 100.0 20.0 3.7	1 3.7
COLUMN TOTAL		5 18.5	17 63.0	5 18.5	27 100.0

Significance = 0.2702
Number of Missing Observations = 3

D. Miscellaneous Tables

Interestingly, there seems to be little correlation between grade expected and the amount of work devoted to the class (table 26). There was a tendency for the persons who found lectures difficult to spend more time on the class each week (table 27). The persons who said that this class took more time than other CSCB classes did not seem to report unusually long hours on the class. The 16 persons who considered the demands of the course comparable to those of other courses were about evenly divided among the various two-to-eight hour categories (table 28).

Table 26. Comparison of hours spent on this class (question 31) with expected grade (question 32).

QUES31	COUNT / ROW PCT / COL PCT / TOT PCT	QUES32 A 1.	B 2.	C 3.	ROW TOTAL
2 TO 4 HOURS	2.	1 12.5 20.0 3.8	6 75.0 37.5 23.1	1 12.5 20.0 3.8	8 30.8
4 TO 6 HOURS	3.	3 27.3 60.0 11.5	5 45.5 31.2 19.2	3 27.3 60.0 11.5	11 42.3
6 TO 8 HOURS	4.	1 16.7 20.0 3.8	5 83.3 31.2 19.2	0 0.0 0.0 0.0	6 23.1
OVER 8 HOURS	5.	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 100.0 20.0 3.8	1 3.8
COLUMN TOTAL		5 19.2	16 61.5	5 19.2	26 100.0

Significance = 0.2647
Number of Missing Observations = 4

Table 27. Comparison of hours spent on this class (question 31) with difficulty in understanding lectures (question 27).

QUES31	COUNT / ROW PCT / COL PCT / TOT PCT	QUES27 1. MUCH TOO DIFFICLT	2. SOMEWHAT DIFFICLT	3. ABOUT RIGHT	4. TOO EASY FOR ME	ROW TOTAL
2 TO 4 HOURS	2.	0	0	6	2	8
		0.0	0.0	75.0	25.0	27.6
		0.0	0.0	31.6	50.0	
		0.0	0.0	20.7	6.9	
4 TO 6 HOURS	3.	0	2	9	2	13
		0.0	15.4	69.2	15.4	44.8
		0.0	40.0	47.4	50.0	
		0.0	6.9	31.0	6.9	
6 TO 8 HOURS	4.	0	3	4	0	7
		0.0	42.9	57.1	0.0	24.1
		0.0	60.0	21.1	0.0	
		0.0	10.3	13.8	0.0	
OVER 8 HOURS	5.	1	0	0	0	1
		100.0	0.0	0.0	0.0	3.4
		100.0	0.0	0.0	0.0	
		3.4	0.0	0.0	0.0	
COLUMN TOTAL		1	5	19	4	29
		3.4	17.2	65.5	13.8	100.0

Significance = 0.0001
Number of Missing Observations = 1

Table 28. Comparison of hours spent on this class (question 31) with relative time spent on this class (question 30).

QUES31		QUES30 MUCHMORE TIME 1.	SOMEWHAT MORE 2.	ABOUT THE SAME 3.	SOMEWHAT LESS 4.	ROW TOTAL
2 TO 4 HOURS	2.	0	3	5	0	8
		0.0	37.5	62.5	0.0	27.6
		0.0	33.3	31.2	0.0	
		0.0	10.3	17.2	0.0	
4 TO 6 HOURS	3.	1	5	5	2	13
		7.7	38.5	38.5	15.4	44.8
		50.0	55.6	31.2	100.0	
		3.4	17.2	17.2	6.9	
6 TO 8 HOURS	4.	0	1	6	0	7
		0.0	14.3	85.7	0.0	24.1
		0.0	11.1	37.5	0.0	
		0.0	3.4	20.7	0.0	
OVER 8 HOURS	5.	1	0	0	0	1
		100.0	0.0	0.0	0.0	3.4
		50.0	0.0	0.0	0.0	
		3.4	0.0	0.0	0.0	
COLUMN TOTAL		2	9	16	2	29
		6.9	31.0	55.2	6.9	100.0

Significance = 0.0190
Number of Missing Observations = 1

Those who chose lecturing as their favorite learning technique spent less time per week on the class than some other students did. That is also true for students who gave a first or second place rank to seeing films and slides. Perhaps we may characterize this group as passive learners.

Table 29. Comparison of ranking of lectures as a method of learning (question 14) with hours spent on this class (question 31).

QUES14	COUNT / ROW PCT / COL PCT / TOT PCT	QUES31 2 TO 4 HOURS 2.	4 TO 6 HOURS 3.	6 TO 8 HOURS 4.	OVER 8 HOURS 5.	ROW TOTAL
1.		6	5	1	0	12
		50.0	41.7	8.3	0.0	41.4
		75.0	38.5	14.3	0.0	
		20.7	17.2	3.4	0.0	
2.		0	3	2	0	5
		0.0	60.0	40.0	0.0	17.2
		0.0	23.1	28.6	0.0	
		0.0	10.3	6.9	0.0	
3.		0	1	0	0	1
		0.0	100.0	0.0	0.0	3.4
		0.0	7.7	0.0	0.0	
		0.0	3.4	0.0	0.0	
4.		1	0	0	0	1
		100.0	0.0	0.0	0.0	3.4
		12.5	0.0	0.0	0.0	
		3.4	0.0	0.0	0.0	
5.		0	1	2	0	3
		0.0	33.3	66.7	0.0	10.3
		0.0	7.7	28.6	0.0	
		0.0	3.4	6.9	0.0	
6.		0	2	1	0	3
		0.0	66.7	33.3	0.0	10.3
		0.0	15.4	14.3	0.0	
		0.0	6.9	3.4	0.0	
7.		0	0	1	0	1
		0.0	0.0	100.0	0.0	3.4
		0.0	0.0	14.3	0.0	
		0.0	0.0	3.4	0.0	
9.		1	1	0	1	3
		33.3	33.3	0.0	33.3	10.3
		12.5	7.7	0.0	100.0	
		3.4	3.4	0.0	3.4	
COLUMN TOTAL		8	13	7	1	29
		27.6	44.8	24.1	3.4	100.0

Significance = 0.1903
Number of Missing Observations = 1

Table 30. Comparison of ranking of films and slides (question 19) with hours spent on this class (question 31).

QUES19 \ QUES31	2. 2 TO 4 HOURS	3. 4 TO 6 HOURS	4. 6 TO 8 HOURS	5. OVER 8 HOURS	ROW TOTAL
1.	2 50.0 25.0 6.9	2 50.0 15.4 6.9	0 0.0 0.0 0.0	0 0.0 0.0 0.0	4 13.8
2.	2 40.0 25.0 6.9	2 40.0 15.4 6.9	1 20.0 14.3 3.4	0 0.0 0.0 0.0	5 17.2
3.	1 33.3 12.5 3.4	2 66.7 15.4 6.9	0 0.0 0.0 0.0	0 0.0 0.0 0.0	3 10.3
4.	0 0.0 0.0 0.0	1 20.0 7.7 3.4	3 60.0 42.9 10.3	1 20.0 100.0 3.4	5 17.2
5.	1 16.7 12.5 3.4	4 66.7 30.8 13.8	1 16.7 14.3 3.4	0 0.0 0.0 0.0	6 20.7
7.	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 100.0 14.3 3.4	0 0.0 0.0 0.0	1 3.4
8.	1 25.0 12.5 3.4	2 50.0 15.4 6.9	1 25.0 14.3 3.4	0 0.0 0.0 0.0	4 13.8
9.	1 100.0 12.5 3.4	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 3.4
COLUMN TOTAL	8 27.6	13 44.8	7 24.1	1 3.4	29 100.0

Significance = 0.5570
Number of Missing Observations = 1

Students who expected B's were more likely to dislike writing papers than either A or C students (table 31). A and C students were more consistent than B students in their dislike of tutorials and of modularized instruction (tables 32 and 33). We have already noted that A and B students preferred small discussion groups more than students did who expected C's (table 24).

Table 31. Comparison of ranking of writing papers (question 18) with expected grade (question 32).

QUES18	QUES32 A 1.	B 2.	C 3.	ROW TOTAL
2.	1 33.3 20.0 3.7	0 0.0 0.0 0.0	2 66.7 40.0 7.4	3 11.1
3.	1 33.3 20.0 3.7	1 33.3 5.9 3.7	1 33.3 20.0 3.7	3 11.1
4.	1 25.0 20.0 3.7	3 75.0 17.6 11.1	0 0.0 0.0 0.0	4 14.8
5.	1 100.0 20.0 3.7	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 3.7
6.	0 0.0 0.0 0.0	4 80.0 23.5 14.8	1 20.0 20.0 3.7	5 18.5
7.	0 0.0 0.0 0.0	4 80.0 23.5 14.8	1 20.0 20.0 3.7	5 18.5
8.	1 50.0 20.0 3.7	1 50.0 5.9 3.7	0 0.0 0.0 0.0	2 7.4
9.	0 0.0 0.0 0.0	4 100.0 23.5 14.8	0 0.0 0.0 0.0	4 14.8
COLUMN TOTAL	5 18.5	17 63.0	5 18.5	27 100.0

Significance = 0.1798
Number of Missing Observations = 3

Table 32. Comparison of ranking of tutorials (question 21) with expected grade (question 32).

QUES21	QUES32 A (1.)	B (2.)	C (3.)	ROW TOTAL
1.	0	1	0	1
	0.0	100.0	0.0	3.7
	0.0	5.9	0.0	
	0.0	3.7	0.0	
3.	1	1	0	2
	50.0	50.0	0.0	7.4
	20.0	5.9	0.0	
	3.7	3.7	0.0	
4.	0	2	0	2
	0.0	100.0	0.0	7.4
	0.0	11.8	0.0	
	0.0	7.4	0.0	
5.	0	1	0	1
	0.0	100.0	0.0	3.7
	0.0	5.9	0.0	
	0.0	3.7	0.0	
6.	0	3	0	3
	0.0	100.0	0.0	11.1
	0.0	17.6	0.0	
	0.0	11.1	0.0	
7.	1	1	1	3
	33.3	33.3	33.3	11.1
	20.0	5.9	20.0	
	3.7	3.7	3.7	
8.	2	3	3	8
	25.0	37.5	37.5	29.6
	40.0	17.6	60.0	
	7.4	11.1	11.1	
9.	1	5	1	7
	14.3	71.4	14.3	25.9
	20.0	29.4	20.0	
	3.7	18.5	3.7	
COLUMN TOTAL	5	17	5	27
	18.5	63.0	18.5	100.0

Significance = 0.7965
Number of Missing Observations = 3

Table 33. Comparison of ranking of modularized instruction (question 22) with expected grade (question 32).

QUES22	COUNT / ROW PCT / COL PCT / TOT PCT	QUES32 A 1.	B 2.	C 3.	ROW TOTAL
1.		0	3	1	4
		0.0	75.0	25.0	14.8
		0.0	17.6	20.0	
		0.0	11.1	3.7	
4.		0	2	0	2
		0.0	100.0	0.0	7.4
		0.0	11.8	0.0	
		0.0	7.4	0.0	
5.		0	1	0	1
		0.0	100.0	0.0	3.7
		0.0	5.9	0.0	
		0.0	3.7	0.0	
6.		1	1	0	2
		50.0	50.0	0.0	7.4
		20.0	5.9	0.0	
		3.7	3.7	0.0	
7.		1	3	0	4
		25.0	75.0	0.0	14.8
		20.0	17.6	0.0	
		3.7	11.1	0.0	
8.		2	3	1	6
		33.3	50.0	16.7	22.2
		40.0	17.6	20.0	
		7.4	11.1	3.7	
9.		1	4	3	8
		12.5	50.0	37.5	29.6
		20.0	23.5	60.0	
		3.7	14.8	11.1	
COLUMN TOTAL		5	17	5	27
		18.5	63.0	18.5	100.0

Significance = 0.7918
Number of Missing Observations = 3

The four students who said that the lectures were too easy gave a much higher ranking to modularized instruction than did those who found the lectures somewhat difficult (table 34). Students who found Streng,

Ways of Being Religious, to be a difficult book gave much lower ranking to modularized instruction than did those who found it at "the right level" or "not challenging enough" (table 35). The results suggest tentatively that modularized instruction appeals to a small group of able students who like to be challenged.

Table 34. Comparison of ranking of modularized instruction (question 22) with difficulty in understanding lectures (question 27).

QUES22	QUES27 1. MUCH TOO DIFFICLT	2. SOMEWHAT DIFFICLT	3. ABOUT RIGHT	4. TOO EASY FOR ME	ROW TOTAL
1.	1	0	0	3	4
	25.0	0.0	0.0	75.0	13.3
	100.0	0.0	0.0	75.0	
	3.3	0.0	0.0	10.0	
3.	0	0	1	0	1
	0.0	0.0	100.0	0.0	3.3
	0.0	0.0	5.0	0.0	
	0.0	0.0	3.3	0.0	
4.	0	0	2	1	3
	0.0	0.0	66.7	33.3	10.0
	0.0	0.0	10.0	25.0	
	0.0	0.0	6.7	3.3	
5.	0	0	1	0	1
	0.0	0.0	100.0	0.0	3.3
	0.0	0.0	5.0	0.0	
	0.0	0.0	3.3	0.0	
6.	0	2	0	0	2
	0.0	100.0	0.0	0.0	6.7
	0.0	40.0	0.0	0.0	
	0.0	6.7	0.0	0.0	
7.	0	0	4	0	4
	0.0	0.0	100.0	0.0	13.3
	0.0	0.0	20.0	0.0	
	0.0	0.0	13.3	0.0	
8.	0	2	5	0	7
	0.0	28.6	71.4	0.0	23.3
	0.0	40.0	25.0	0.0	
	0.0	6.7	16.7	0.0	
9.	0	1	7	0	8
	0.0	12.5	87.5	0.0	26.7
	0.0	20.0	35.0	0.0	
	0.0	3.3	23.3	0.0	
COLUMN TOTAL	1	5	20	4	30
	3.3	16.7	66.7	13.3	100.0

Significance = 0.0110

Table 35. Comparison of ranking of modularized instruction (question 22) with difficulty in reading Streng, Ways of Being Religious (question 29).

QUES22	QUES29 1. MUCH TOO DIFFICLT	2. SOMEWHAT DIFFICLT	3. ABOUT RIGHT	4. TOO EASY FOR ME	ROW TOTAL
1.	0	1	2	1	4
	0.0	25.0	50.0	25.0	13.3
	0.0	5.6	25.0	100.0	
	0.0	3.3	6.7	3.3	
3.	0	1	0	0	1
	0.0	100.0	0.0	0.0	3.3
	0.0	5.6	0.0	0.0	
	0.0	3.3	0.0	0.0	
4.	0	3	0	0	3
	0.0	100.0	0.0	0.0	10.0
	0.0	16.7	0.0	0.0	
	0.0	10.0	0.0	0.0	
5.	0	0	1	0	1
	0.0	0.0	100.0	0.0	3.3
	0.0	0.0	12.5	0.0	
	0.0	0.0	3.3	0.0	
6.	0	1	1	0	2
	0.0	50.0	50.0	0.0	6.7
	0.0	5.6	12.5	0.0	
	0.0	3.3	3.3	0.0	
7.	2	2	0	0	4
	50.0	50.0	0.0	0.0	13.3
	66.7	11.1	0.0	0.0	
	6.7	6.7	0.0	0.0	
8.	1	6	0	0	7
	14.3	85.7	0.0	0.0	23.3
	33.3	33.3	0.0	0.0	
	3.3	20.0	0.0	0.0	
9.	0	4	4	0	8
	0.0	50.0	50.0	0.0	26.7
	0.0	22.2	50.0	0.0	
	0.0	13.3	13.3	0.0	
COLUMN TOTAL	3	18	8	1	30
	10.0	60.0	26.7	3.3	100.0

Significance = 0.1614

E. The Original Questionnaire

R S 101
EVALUATION QUESTIONNAIRE: Please write in the appropriate number.

_____Approximately how many times have you used the TRY program? 1

_____Approximately how many times have you used CASTE? 2

_____How many times STAGES? 3

_____The printed instructions for using the computer were (1) very clear, (2) fairly clear, (3) average, (4) somewhat confusing, or (5) very confusing. 5

_____In general, the questions and statements in the CASTE program were (1) very clear, (2) fairly clear, (3) average, (4) somewhat confusing or (5) very confusing. 6

_____The questions and statements in STAGES were (1) very clear, (2) fairly clear, (3) average, (4) somewhat confusing, or (5) very confusing. 7

_____As an aid to learning, I consider the computer exercises to be (1) very helpful, (2) fairly helpful, (3) not too helpful, or (4) not helpful at all. 8

_____The TRY program was (1) helpful to me in becoming more familiar with the computer, (2) fun, but not particularly helpful, or (3) a waste of time. 9

_____Before I did the CASTE program, I thought that I (1) did, (2) did not understand the caste system fairly well. 10

_____After doing the CASTE program, I think I understand the caste system (1) less than I did before, (2) about as well as I did before, (3) a little better than before, or (4) much better than before. 11

_____Before I did the STAGES program, I thought that I (1) did, (2) did not understand the Hindu "stages of life" fairly well. 12

_____After doing STAGES, I think I understand the "stages of life" (1) less than I did before, (2) about as well as I did before, (3) a little better than before, or (4) much better than before. 13

In the future, if I could choose among different learning techniques, I would rank my choices as follows:
(Please rank each item, with 1 as your first choice, 2 as your second, etc., with 9 as your last choice.)

___lectures
___discussion in a large group
___discussion in a small (4 to 8 students) group
___computer assisted instruction
___writing papers
___seeing films and slides
___assigned reading
___individual tutorial
___modularized, self-paced instruction. 22

EVALUATION QUESTIONNAIRE: Please write in the appropriate number.

_____My small discussion group (1) did, (2) did not have a senior student appointed as leader. 23

_____I would have preferred to be in a group (1) with, (2) without a senior student appointed as leader. 24

_____If you had an appointed leader, please evaluate his/her performance as follows: (1) very helpful, (2) somewhat helpful, (3) made no difference to the success of the group, (4) somewhat a hindrance, or (5) a considerable hindrance to the group. (6) I had no leader. 25

_____I wish that we had used the small group discussions (1) much more than we did, (2) somewhat more, (3) about as often as we did, (4) less than we did, or (5) not at all. 26

_____In general, the lectures in class have been (1) much too difficult, (2) somewhat difficult, (3) at about the right level for me, (4) not challenging enough for me, or (5) far too easy. 27

_____The reading assignments in Smith, The Religions of Man, have been (1) much too difficult, (2) somewhat difficult, (3) at about the right level for me, (4) not challenging enough for me, or (5) far too easy. 28

_____The reading assignments in Streng, Ways of Being Religious, have been (1) much too difficult, (2) somewhat difficult, (3) at about the right level for me, (4) not challenging enough for me, or (5) far too easy. 29

_____Compared to other courses I have taken at CSCB, this course takes (1) much more time, (2) somewhat more time, (3) about the same amount of time, (4) somewhat less time, or (5) much less time. 30

_____On the average, preparation and studying and writing for this class takes about (1) 0 to 2 hours per week,
(2) 2 to 4 hours per week,
(3) 4 to 6 hours per week,
(4) 6 to 8 hours per week, or
(5) more than 8 hours per week. 31

_____I expect to receive the following grade in this class:
(1) A
(2) B
(3) C (or CR)
(4) D
(5) F (or NC) 32

F. List of Tables

Table Number	Crosstabulates
1.	Questions 4 and 8
2.	Questions 17 and 4
3.	Questions 10 and 11
4.	Questions 12 and 13
5.	Questions 30 and 10
6.	Questions 30 and 12
7.	Questions 31 and 10
8.	Questions 31 and 12
9.	Questions 11 and 8
10.	Questions 13 and 8
11.	Questions 21 and 11
12.	Questions 21 and 13
13.	Questions 17 and 8
14.	Questions 17 and 20
15.	Questions 17 and 28
16.	Questions 17 and 29
17.	Questions 20 and 8
18.	Questions 14 and 24
19.	Questions 20 and 25
20.	Questions 20 and 26
21.	Questions 22 and 26
22.	Questions 23 and 24
23.	Questions 30 and 24
24.	Questions 16 and 32
25.	Questions 26 and 32
26.	Questions 31 and 32
27.	Questions 31 and 27
28.	Questions 31 and 30
29.	Questions 14 and 31
30.	Questions 19 and 31

Table Number	Crosstabulates
31.	Questions 18 and 32
32.	Questions 21 and 32
33.	Questions 22 and 32
34.	Questions 22 and 27
35.	Questions 22 and 29